ECONOMIC IMPACT STUDY:
Acceleration of the Implementation of Toronto Waterfront East LRT

Photo - Sakith Ranaweera

HATCH

This report was prepared for:

Waterfront Toronto

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EXECUTIVE SUMMARY

Investments in well-planned light rail have proven to show lasting economic benefits in the communities they serve. Hatch reviewed existing studies, reports, and models, and modelled quantitative data to estimate the economic impacts and benefits produced by an accelerated implementation of the Waterfront East LRT in Toronto, Ontario, Canada. This analysis identified benefits of the acceleration of the Waterfront East LRT compared to a delayed implementation scenario. Benefits are realized from the following factors:

- The accelerated build of the Waterfront East LRT project meets local and regional planning goals, with policy alignment of key documents including the City of Toronto's Official Plan, the City of Toronto's 15 Year Rapid Transit Network Plan, the Waterfront Transit Network Plan, the region's Growth Plan, and the Metrolinx 2041 Regional Transportation Plan. This policy alignment supports significant occurring and projected growth of Toronto and the GTHA.
- The inducement of additional commercial, retail, and residential space results in the continued expansion of Toronto's highly productive and efficient Downtown core, which has limited capacity:
    - **Office Space Along Corridor:** The Waterfront East LRT would accelerate the yield of incoming office space along the corridor, contributing to 19 million square feet, supporting up to 132,000 new jobs.
    - **Residential Space Along Corridor:** Accelerate and support the delivery of up to 25,000 new housing units, accommodating almost 67,000 new residents in the area, and contributing to much-needed housing supply.
    - **Retail Space Along Corridor:** Support up to 1.3 million square feet of retail supporting up to 3,500 jobs.
- With the accelerated build of the Waterfront East LRT, there will be increased productivity of workers and residents that will live along the Waterfront. Mode shares are assumed to shift, with an increase of 15% public transit mode share for new residents/ workers. In downtown Toronto, it is assumed that there will be a decrease of 44% of automobile use by incoming residents and workers in the corridor which contributes to reduced congestion and productivity gains.
- Delaying the build of the LRT from 2025 to 2045 could cost about 100 million person-hours (cumulative from 2025-2045), which monetizes to time savings of about $1.8 billion.
- **Tax Revenue Uplift:**
    - The costs of delaying the LRT project is approximately $3.8 billion in tax revenue to the Province of Ontario between 2025 and 2045.
    - The costs of delaying the LRT project is

approximately $9 billion in federal tax revenue between 2025 and 2045.

- The costs of delaying the LRT project results in approximately $10 billion of neighbourhood foregone municipal property tax potential revenue between 2025 and 2045.*

- **Property Value Uplift:** According to research done on previous comparable LRT studies, property values along the Waterfront East LRT corridor could be up to $4.5 billion by 2045.

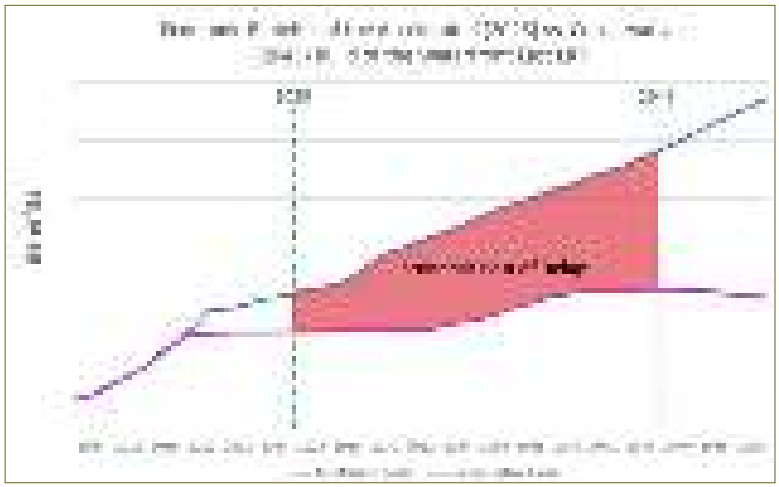

Figure 1: Conceptual graph of economic benefits of the accelerated (2025) vs. conservative (2045) build of the Waterfront East LRT

In this report, the accelerated in-service date of the Waterfront East LRT is projected to be 2025, while the conservative in-service build is projected to be 2045. Figure 1 illustrates the conceptual timelines of the accelerated and conservative builds, and the difference or cost of economic benefits between the two, i.e. the economic cost of delaying the Waterfront East LRT project. This graph further illustrates that although growth will still occur with the conservative build, there will be a greater yield of benefits if the accelerated build occurs.

Furthermore, additional benefits not quantified but are important, highlighted here include:

- Improvements in worker productivity associated with reduced congestion and increased trip reliability.
- Benefits and momentum of a “Transit First” approach through behaviour changes and physical design changes to buildings as they are developed.
- Environmental and Health Benefits.

This report demonstrates the need for an accelerated build of the Waterfront East LRT, highlighting the benefits associated with it.

* Please note: The municipal property tax is not a comprehensive tax calculation but helps identify order of magnitude.

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INTRODUCTION

The Toronto Waterfront East Light Rail Transit (LRT) is a prioritized rapid transit project for the City of Toronto that is currently unfunded. The Regional Transportation Plan (RTP) by Metrolinx proposes this LRT line of 7 km to run from Union Station to Coxwell Avenue, connecting downtown Toronto, the Port Lands, and the Beach. It could be built in phases.

The construction phasing of the line is undecided as of now. However, for the purpose of this report, one possible phased-build scenario of this LRT may be divided into three phases:

- **Phase 1:** Union Station to Cherry Street and Lake Shore Boulevard East
- **Phase 2:** From Cherry Street to Commissioners Street then up Leslie Street (potential stop near the Streetcar yard)
- **Phase 3:** Leslie Street to Coxwell Avenue

Figure 2 illustrates the corridor area of study. For economic assessments in this report, the entire corridor is assessed.

This study highlights the Waterfront context and the Quayside transit mode share. It further analyzes economic benefits and impacts of an accelerated implementation of the Waterfront East LRT, highlighting the activities in the area and benefits and momentum of a "Transit First" approach. More specifically, economic benefits are assessed through an evaluation of the urban context of the study area. Key factors including land use and density, employment, business attraction, tax revenue uplift, nearby amenities and landmarks, congestion relief, and property types in the immediate area are analyzed.

The proposed development in and around the waterfront is denser, walking-oriented, and will enable more transit and cycling; furthermore, it is adjacent to downtown Toronto which is the country's largest and most productive economic node. Hence, the economic impact and benefit assessment in this report adds clarity, commentary, and insight to a case for accelerating the sustainable, intensified development integrated with transit through the Waterfront East LRT. This option overrides the "status quo" slower build of the LRT, with a comparatively less impressive performance achieved relative to sustainable trips, sustainable infrastructure, and sustainable development.

The accelerated build is presumed to be by 2025 if a decision is taken by 2019 of the preferred options of the Waterfront East LRT which are in the planning phase. Construction could possibly begin in 2021-2023, after funding and procurement have occurred. The possible operational timeline would then be 2025. For this report, the accelerated build is assumed to be 2025, and conservative build to occur by 2045. It is important to note that although growth will still occur with the conservative build, there will be a greater yield of benefits if the accelerated build occurs.

Photo Credit: Sam Lui

Figure 2: Corridor area of study (Source: Google Maps)

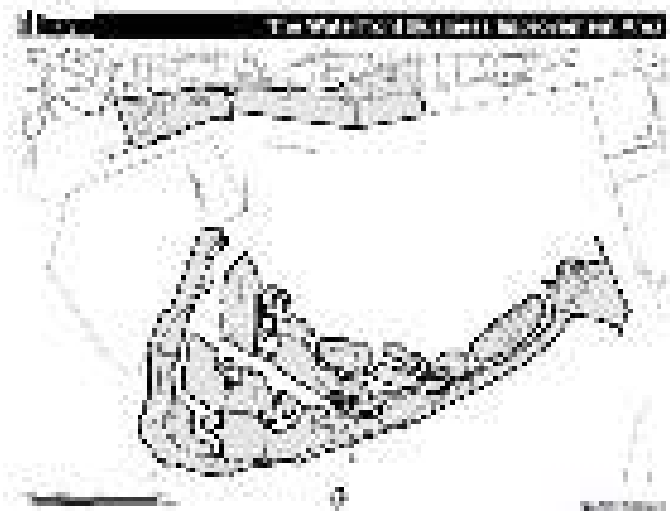

Figure 3: The Waterfront Business Improvement Area (Boundary Map) (Source: Waterfront BIA)

Figure 4: This figure illustrates the area that can be accessed by public transport from the Waterfront BIA in a 15-minute radius (Source: Mapnificent)

Further, this economic impact study showcases the opportunity of potential jobs, housing and tax revenue growth from an accelerated build of the Waterfront East LRT compared to a slower growth scenario; this includes economic benefits for the existing Waterfront Business Improvement Area (BIA) along Queen's Quay between Bathurst and Yonge. In addition to this, the expected impacts of accelerated LRT construction for the area of already built out businesses that are currently connected to Union via the existing LRT is discussed.

For context, the Waterfront BIA boundaries extend from Stadium Road to Yonge Street, from Lake Shore Boulevard to the lake's edge, and it includes the Toronto Islands, as highlighted in Figure 3. A 15-minute radius of area that can be access by public transport from the Waterfront BIA is demonstrated in Figure 4.

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THE WATERFRONT CONTEXT – LOCAL AND REGIONAL GROWTH

The Toronto Waterfront East Light Rail Transit (LRT) is a prioritized rapid transit project for the City of Toronto that is currently in its planning phase. It was part of Metrolinx's 2041 Regional Transportation Plan as a rapid transit project in development, highlighting its role in the greater regional transportation network. This LRT line is part of a greater new Waterfront light rail transit corridor, which extends from Long Branch GO Station to Union Station making up the Waterfront West LRT (22.3 km), and from Union Station to Coxwell Avenue (7 km) making up the Waterfront East LRT.

The Waterfront East LRT will extend from its western terminus, Union Station in Toronto, to its eastern terminus on Coxwell Ave. This proposed route of 7 km will make links to downtown Toronto, the Port Lands, and the Beach. The focus area of study for this report which includes the Waterfront East LRT corridor (explained in Phases 1, 2, and 3) as well as the Waterfront BIA along Queen's Quay between Bathurst St. and Yonge Street, makes up a key part of this route. The Waterfront East LRT is envisaged to run down the south side of Queens Quay East, and eventually connect the new neighbourhoods of the Port Lands and the future Broadview Streetcar, and creating a light rail service to East Harbour. This line was initially cancelled in 2010, however, it was revived in 2017 as part of the Waterfront Transit "Reset" Study.

Waterfront LRT

WATERFRONT EAST LRT

Waterfront East LRT will be a new transit corridor along the waterfront. It links downtown Toronto, the Port Lands and the booming East Bayfront area from Union Station to East Harbour (Broadview Avenue Extension South) with a total rail length of 7km.

WATERFRONT WEST LRT

Waterfront West LRT will be a new light rail transit corridor utilizing a combination of existing and future network elements along Toronto's western waterfront. It links downtown Toronto and Long Branch from Union Station in Toronto to Long Branch GO Station in south Etobicoke at the Mississauga border. Total length of 22.3 km.

WATERFRONT TRANSIT "RESET" STUDY

There has been significant change, and rapid growth in many precincts along the water's edge. As such, the City of Toronto undertook a multi-phase Waterfront Transit "Reset" study to update and reconcile all other related mobility studies previously conducted for the waterfront area. This study, conducted by City of Toronto in partnership with Waterfront Toronto and the TTC, assesses the transit needs and improvements needed in the waterfront area, exploring different transit strategies and options. It was divided into two phases:

- **Phase 1:** Included the review of background information, established objectives and vision for the study, and created a list of improvement areas and concepts to further explore. This phase, completed in 2016, resulted in the refining of the primary study area, as shown in Figures 5 and 6.
- **Phase 2:** The scope of this phase consisted of developing sustainable mobility solutions, transit network recommendations, and funding requests. This phase was completed in January 2018 and concluded in a decision by City Council to endorse the overall Transit Network Plan, where the Waterfront East LRT plays a key role.

In particular, Phase 2 of the study focused on unresolved areas of the network with the potential to add significant transit network additions including the East Bayfront and the extension of transit into the Port Lands; furthermore, the section from Legion Road and Lakeshore Boulevard to Exhibition Place was added. Some improvements have been committed, while others await council direction in 2019.

Figure 5: The Waterfront Transit "Reset" Study area in blue (Source: City of Toronto)

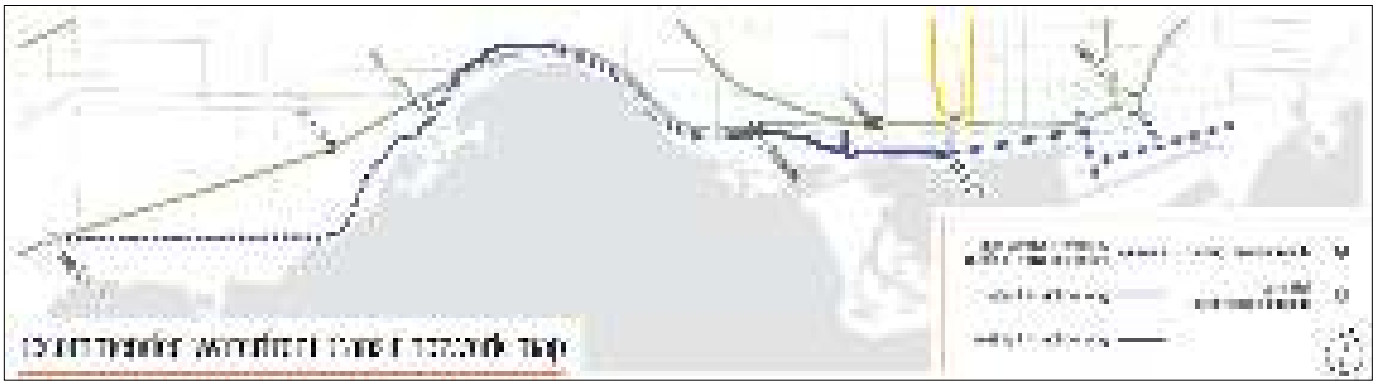

Figure 6: Recommended Waterfront Transit Network Map (Source: City of Toronto)

Figure 7: Block Map of East Bayfront (Source: WATERFRONTToronto)

TORONTO WATERFRONT DEVELOPMENT

There is significant planned and current growth at Toronto's Waterfront. Important areas along the waterfront including Liberty Village, Humber Bay Shores, Mimico, South Core, City Place, Fort York, East Harbour, and King/Spadina. These areas demonstrate the growth and productivity in this region, that will only be amplified further with a well-integrated transit network, especially on the Waterfront East LRT route. Major transit initiatives underway in the area as well: Metrolinx Regional Express Rail (RER), Smart Track, Scarborough Transit Planning, Relief line.

East Bayfront

East Bayfront (Figure 7) is an emerging neighbourhood in Toronto that is transforming from industrial use to mixed-use to create a residential and commercial district at the waterfront. This development, made up of 55 acres, will have 6,000 new residential units, 3 million square feet of commercial space, and 8,000 new jobs. It will also be served by LRT, part of the Waterfront East LRT.

Sidewalk Labs

Sidewalk Labs, a division of Google's parent company Alphabet Inc, is in the planning process of an innovative development in Quayside in partnership with government agency Waterfront Toronto. Titled "Sidewalk Toronto," the 12-acre district will include 3.3 million square feet of residential, office and commercial space. As North America's largest Smart City, Sidewalk Labs will integrate information technology that uses data into the urban fabric to manage traffic, noise, air quality, and performance of systems, some of which are displayed in Figure 8. The Waterfront East LRT, will enable access and amenity to Sidewalk Labs.

Port Lands

Port Lands is a large area that will transform Toronto's waterfront from underutilized industrial sites into a unique sustainable community. The planning and redevelopment of the Port Lands is currently underway with new parks, public spaces and a renewed urban realm. Within the site the new vibrant Villiers Island neighbourhood will be created. Villiers Island will support residential, commercial and open space uses. East Harbour to the immediate north will support this development by providing transit hub access. Figure 9 illustrates the proposed transit network for the Port Lands.

East Harbour

The East Harbour Development is a proposed 62-acre site anchored by the East Harbour GO Station (see Figure 10). East Harbour will be a new employment node just a few minutes train ride from the Financial District with 50,000

Figure 8: Sidewalk Labs Toronto urban street design (Source: Sidewalk Labs)

Figure 9: Proposed transit network for the Port Lands (Source: WATERFRONTToronto)

Figure 10: Rendering of East Harbour Development (Source: First Gulf)

high-paying jobs. Just a few minutes by train from Union Station, it is the mixed-use employment centre the market is demanding. The development will stand alone as a bustling attraction as well as complement development happening to the south in the Port Lands and Waterfront East. The Waterfront East LRT will provide access to this new development, helping connect this key area to the greater waterfront, such as the Waterfront BIA.

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STRATEGIC ANALYSIS

The Waterfront East LRT project meets local and regional planning goals and is necessary to support significant occurring and projected growth. Its accelerated build aligns with policy and planning programs in the region.

CITY OF TORONTO OFFICIAL PLAN

After the completion of Phase 2 of the Waterfront Transit "Reset" study, City Council decided to amend the second phase of the Official Plan Review of Transportation and Transit policies to include the Waterfront Transit Network. This prioritizes the Waterfront East LRT which is in the key study area.

CITY OF TORONTO 15 YEAR RAPID TRANSIT NETWORK PLAN

The City of Toronto's Rapid Transit Network Plan shows existing, in development, and currently planned rapid transit projects within the city. The Waterfront East LRT is shown as currently being planned in Figure 11.

WATERFRONT TRANSIT NETWORK PLAN

The Waterfront Transit Network Plan established a transit network running from Long Branch and Lake Shore to Queen Street and Woodbine Avenue. This study divided this area into 4 key sections, highlighted in Figure 12, within which lies the Waterfront East LRT, to implement transit solutions specific to each section, which work together to create an integrated and connected multi-modal transit system. In particular, this Plan highlights the future (2041) waterfront transit demand, indicating Peak AM Hour ridership on the Waterfront East in 2041.[1] This plan resulted in a recommendation of streetcar infrastructure projects to implement based on their routes, service options, and fulfilment of future ridership demands.

Figure 11: Coordinated Priority Network Planning (Source: City of Toronto)

1 Waterfront Transit Network Plan, Attachment 1: Planning and Technical Background

Figure 12: Segment Areas of the Waterfront Transit Network Plan (Source: City of Toronto)

THE GROWTH PLAN FOR THE GREATER GOLDEN HORSESHOE (2017)

The Growth Plan for the Greater Golden Horseshoe was approved by the Province of Ontario on June 16, 2006, amended June 17, 2013. The accelerated construction of the Waterfront East LRT aligns with the Growth Plan, which sets out policies to manage growth in the Greater Golden Horseshoe to achieve compact, complete communities in the future. These communities strive to be served by well-integrated and well-connected transit. The proposed acceleration of the Waterfront East LRT supports key areas of the Growth Plan, including:

- Ensuring the role of Downtown Toronto's Financial core as the primary centre in the Greater Golden Horseshoe for international finance and commerce.
- Aligning with the provision of additional office space that will be supported by this LRT project, which is supportive of and complementary to existing office development in Downtown Toronto's Financial Core, considerate of the limited supply of office space.
- Development of this project will assist the City to meet its forecasted employment and housing growth as set out in the Growth Plan.
- The Waterfront East LRT will support multimodal movement options through the area such as cycling, walking, transit, and vehicular traffic.

METROLINX 2041 REGIONAL TRANSPORTATION PLAN (RTP)

The Metrolinx Regional Transportation Plan strives to ensure easy access to fast and frequent, seamless transit service throughout the Greater Toronto and Hamilton Area (GTHA). To do this, transit agencies and key stakeholders in the region are collaborating and partnering to ensure the planning, building, maintaining, financing and operating of transit projects are clear and coordinated amongst all relevant parties, which include 30 regional and local governments in the GTHA, Metrolinx, the federal government, provincial government, and transit agencies such as GO Transit. The strategies are to complete the delivery of current regional transit projects, establish rapid transit that connects more of the region, optimize on the current transportation system, integrate transportation and land use, and prepare for an uncertain future. Figures 13 and 14 illustrate the rapid transit projects that are in development in the region, including the Waterfront East LRT.

Figure 13: In Development Rapid Transit Projects (Source: Metrolinx 2041 Regional Transportation Plan)

Figure 14: Waterfront East LRT (indicated by number 38 in orange) (Source: Metrolinx 2041 Regional Transportation Plan)


Photo Credit: Jim Orgill

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ECONOMIC ANALYSIS

The premise of calculating the economic benefits of the Waterfront East LRT is to establish the enhanced value of this line both locally and regionally. That is, what are the benefits resulting from the accelerated build of the Waterfront East LRT? In this report, the accelerated in-service build is projected for the year 2025. The conservative in-service build is projected for the year 2045. Without the acceleration of this project, growth in the waterfront and downtown Toronto area will still occur; however, a greater yield of productivity and growth is assumed to result from the acceleration of this project, as shown in Key Findings below and explained further in this chapter. This economic case for the accelerated build of the Waterfront East LRT analyzes the economic benefits by looking at key factors including: land use and spatial development, mode share, increased density, employment, tax revenue uplift, property value uplift, and business attraction. These benefits are demonstrated over the next approximately 25 years (2019 where markets will start to reflect the growth anticipated for the 2025 in-service build of the line, to 2045), with the greater yield of benefits of the accelerated build being compared to the benefits from the conservative build; in other words, this analysis demonstrates the cost of delaying the accelerated build of the Waterfront East LRT assuming different growth scenarios related to the timing of LRT implementation.

Key Findings:

- The inducement of additional commercial, retail, and residential space results in the continued expansion of Toronto's highly productive and efficient Downtown core, which has limited capacity:
  - **Office Space Along Corridor:** The Waterfront East LRT is projected to accelerate the yield of incoming office space along the corridor, contributing to 19 million square feet, supporting up to 132,000 new jobs.
  - **Residential Space Along Corridor:** Accelerate and support the delivery of up to 25,000 new housing units, accommodating almost 67,000 new residents in the area, and contributing to much-needed housing supply.
  - **Retail Space Along Corridor:** The accelerated construction of the LRT is projected to support up to 1.3 million sq. feet of retail supporting up 3,500 jobs.
- **Mode Share Shift:** With the accelerated build of the Waterfront East LRT, there will be increased productivity of workers and residents that will live along the Waterfront. Mode shares are assumed to shift, with an increase of 15% public transit mode share for new residents/workers. In downtown Toronto, it is assumed that there will be a decrease of 44% of automobile use by incoming residents and workers in the corridor which contributes to reduced congestion and productivity gains.
- **Productivity Gains:** Delaying the build of the LRT from 2025 to 2045 could cost about 100 million person-hours (cumulative form 2025-2045), which monetizes to time savings of about $1.8 billion.
- **Tax Revenue Uplift:**
  - The costs of delaying the LRT project is approximately $3.8 billion in tax revenue to the Province between 2025 and 2045.
  - The costs of delaying the LRT project is approximately $9 billion in federal tax revenue between 2025 and 2045.
  - The costs of delaying the LRT project results in approximately $10 billion of neighbourhood foregone municipal property tax potential revenue between 2025 and 2045.*
- **Property Value Uplift:** According to research done on previous comparable LRT studies, property values along the Waterfront East LRT corridor could value up to $4.5 billion by 2045.

* Please note: The municipal property tax is not a comprehensive tax calculation but helps identify order of magnitude.

- **Benefits and momentum of a "Transit First" approach** through behaviour and physical change.
- **Environmental and Health Benefits.**

METHODOLOGY

The economic assessments in this chapter uses CoStar Group Data, Census Canada data, and other sources of data to establish the benefits of the accelerated Waterfront East LRT project. The Waterfront East LRT corridor spanning a 800m radius was split into three phases, and data from these three phased-areas was assessed to produce the economic benefits resulting from this project. Splitting up the corridor allowed for data that was more precise, and this data was combined to demonstrate the economic benefits arising from the LRT's service along the entire corridor which is shown in Figure 17.

The key area that was assessed for accelerated economic benefits due to the contruction of the Waterfront East LRT was downtown Toronto, shown in Figure 16. The Toronto metropolitan (metro) is further referenced to elaborate on the economic benefits from a regional perspective; the boundaries of the Toronto metro include downtown Toronto and the Greater Toronto Hamilton Area (GTHA). Lastly, Figure 15 highlights the Financial District boundaries within downtown Toronto. These areas are further referenced in the chapter as different economic impacts are assessed.

Figure 15: Downtown Toronto boundaries (Source: Google)

Figure 16: Toronto Financial District boundaries (Source: Google)

Figure 17: The Waterfront East LRT Corridor and area of study (Source: Google)

BENEFITS AND MOMENTUM OF A "TRANSIT FIRST" APPROACH

One way to influence transportation choices is through a "Transit First" approach. A "Transit First" approach uses design standards and planning criteria to ensure for transit that is sustainable and reflects elements of Transit-Oriented Development (TOD). TOD specifically encourages mixed-use development (especially within a transit corridor such as the Waterfront East LRT corridor), walkability, and integrates multi-modal access to transit services and local amenities.

This approach is broken down into two areas:

1. **Behaviour Change:**

   This approach emphasizes the importance of transit to be introduced early in the planning stages of new development. This informs on ridership information of the people affected by this new development before they settle down and establish travel behaviour and habits relying solely on automobiles.[2] It is more difficult to induce behaviour change once people have established certain transit routine and behaviour; i.e. if there are no transit options nearby, people will depend on their automobiles and establish transit patterns consistent with their transit network or lack thereof. Thus, it is crucial to consider introducing well-integrated transit options in the planning stages of new development. This can be done through phasing the transit option so that initial services can be both timely and cost-effective, building further to future service. Behaviour change based on a new transit system which results in mode share changes and commute time savings is further quantitatively explained in this chapter, in the next section: Productivity Gains.

2. **Physical Change – Permanent Infrastructure:**

   Permanent infrastructure plays a role in establishing a "Transit First" approach. People are likely to use the infrastructure that services an area, depending on when it was first established. For example, if parking lots were built in an area prior to the establishment of transit options such as an LRT line, it is most likely that people will use their automobiles to access that area, even after they have the option of an LRT line that does not require the use of the parking lot. People will continue to use their automobiles and be reluctant to switch over to the transit option. This ties in to the behaviour change. In contrast, if the LRT line is established prior to the automobile-friendly infrastructure, the travel patterns and mode choices of individuals may be influenced and may favour the permanent infrastructure initially present (such as public transit infrastructure), making it a viable travel option.

   Ergo, to establish the benefits of the "Transit First" approach, both through behaviour and physical change, it is important to consider the planning, phasing and build of a transit project such as the Waterfront East LRT. This, in turn, informs on ridership benefits and productivity gains, helps achieve transit-oriented development, and contributes to a sustainable transit system.

2 https://www.oakville.ca/assets/2011%20planning/nco-transitplan-09nov09.pdf

PRODUCTIVITY GAINS

The development of the Waterfront East LRT corridor is assumed to increase worker productivity through commute time savings and through more efficient mode transfers more efficient, or both. Furthermore, the build of the Waterfront East LRT is assumed to reduce traffic by shifting mode share in the Toronto network (both downtown Toronto centre mode share, and Toronto Metro mode share), during peak morning and evening hours, reducing congestion and increasing time savings.

Commute Time Savings

Toronto Centre and Toronto Metro Mode Share

According to Canadian Census data, a new job or new resident can either follow the mode share pattern prevalent in the Toronto metro or in downtown Toronto, as highlighted in Figures 18 and 19, respectively. In the Toronto Metro area, 62% the mode share is vehicle use primarily as a driver, whereas 24% of the mode share consists of public transit. In contrast, the Toronto Downtown Centre mode share consists of 18% of car/truck/van as a driver, and 39% consisting of public transit. With the accelerated build of the Waterfront East LRT, the public transit mode share will increase from 24% to 39%, an increase of 15% of public transit mode share for new residents/jobs. The car/truck/van – as a driver mode share will decrease from 62% to 18%, with a decrease of 44% of automobile use for the incoming residents/workers, relying less on private automobile use.

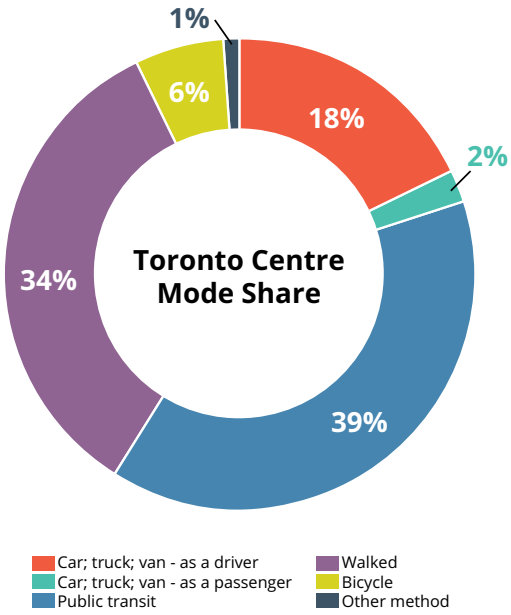

Figure 18: Toronto Centre Mode Share

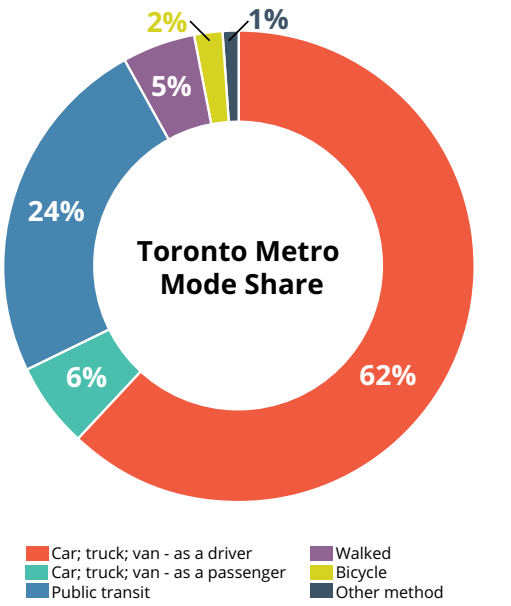

Figure 19: Toronto Metro Mode Share

Toronto Centre and Toronto Metro Commute Duration

For a new job or resident resulting from the accelerated build of the Waterfront East LRT, commute duration will vary depending on whether someone is commuting in downtown Toronto, or in Toronto Metro. With the LRT, more people will be commuting for less than 15 minutes in downtown as compared to the rest of the city (18% as opposed to 14%). A big shift will occur in commute duration of 15 to 29 minutes, with 39% undergoing that commute in downtown while 29% undergo that commute in the Toronto metro. Collectively, 43% (25%, 9%, and 9%, respectively) have a commute duration of 30 minutes or over in the downtown centre, while 57% (26%, 14%, and 17%, respectively) have the same commute duration in the Toronto metro. The 14% reduction in 30 minutes or over commute duration in the Toronto Centre indicates a faster commute time attributed to the build of the Waterfront East LRT. This is highlighted in Figures 20 and 21. This, in turn, results in time savings and productivity gains for new jobs or residents in the LRT corridor.

In total, delaying the accelerated build of the LRT from 2025 to 2045 would cost about 100 million person-hours, which monetizes to productivity savings of about $1.8 billion, shown in Figure 22.

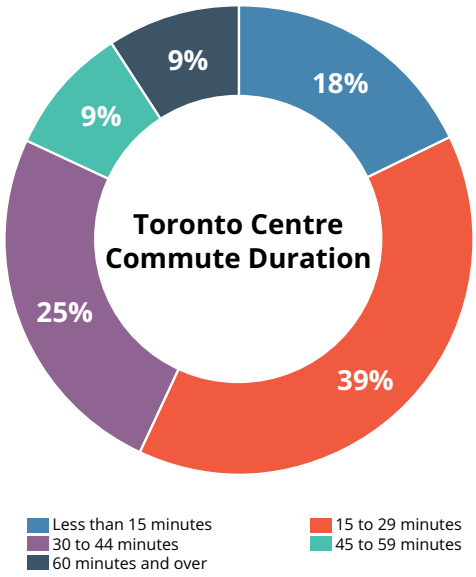

Figure 20: Toronto Centre Commute Duration

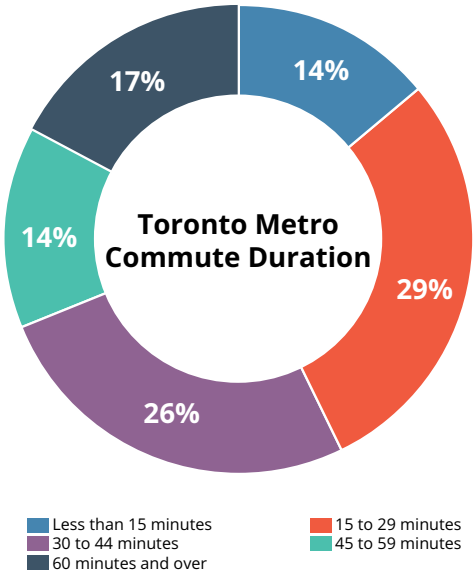

Figure 21: Toronto Metro Commute Duration

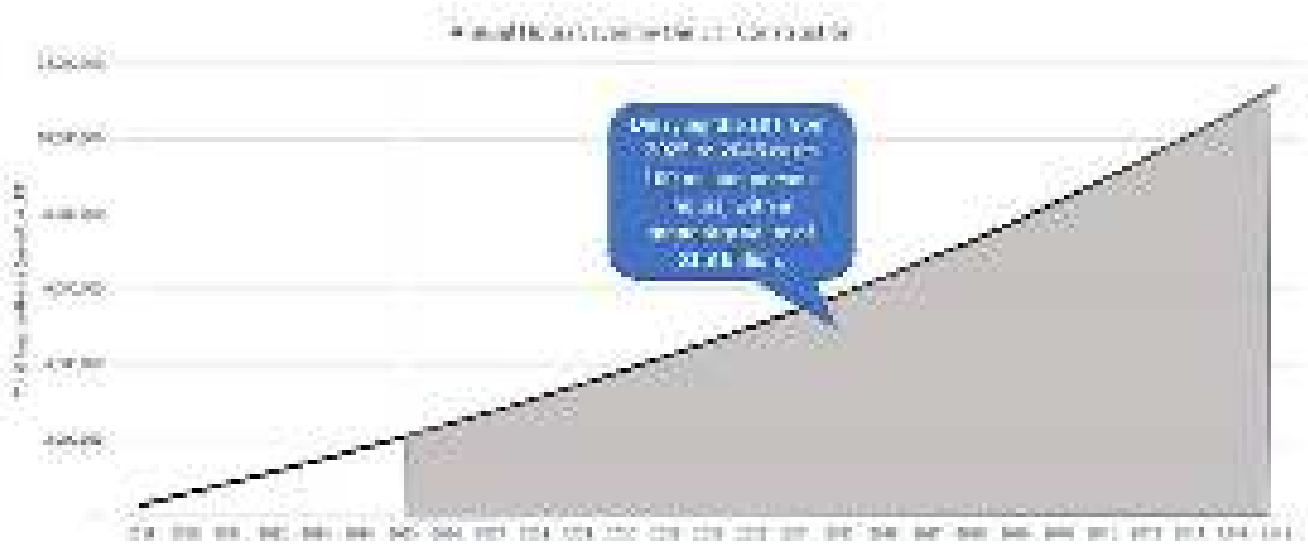

Figure 22: Hours Saved by the LRT Construction

Figure 23: Summary 2041 Forecasted Transit Network Demand (AM Peak Hour) (Source: City of Toronto)

FUTURE TRAVEL DEMAND

The City of Toronto's Waterfront Transit Network Plan – Attachment 1: Planning and Technical Background highlights the future (2041) waterfront transit demand modeled by the City's regional transportation demand modelling tool (GTAModel v4).[3] This data used more than a dozen permutations and scenarios to assess for future waterfront transit alignments and service. The model scenarios were framed around the 16 transit improvement concepts brought forward at the end of the Phase 1 study. The model analyzed new waterfront light rail transit infrastructure with average speed ranging up to 25 km/h, depending on the area of the network. Figure 23 illustrates the different transit demands (AM peak hour) on the waterfront and within the study area.

Ridership going east on the line at the AM Peak Hour is 600, and west on the line is 2350.[4] . This projected ridership is significant because users of the line will have a shorter than regional average commute. As congestion worsens in the future, especially in the city core as commutes are historically longer in busier city cores as opposed to less congested areas, more and more people turn to public transit for faster commutes. According to the 2016 census, the average commute has increase to 26.2 minutes from 25.4 minutes in 2011, with the longest commutes being in Toronto – an average commute time to work being 33 minutes.[5] This number is projected to increase. However, what is significant about the Waterfront East LRT line is that due to the frequency and shortness of trips it will serve along this specific route, it will be a faster travel option than by automobile or other modes of transportation, and it will offer a shorter than average commute. This ensures both time efficiency and use of the line. Furthermore, in terms of growth, the Waterfront Transit Network Plan highlights land use projections to the year 2041 stating that the waterfront will outpace most other areas in the City of Toronto and the Region.[6] The Waterfront East LRT plays a crucial role in accommodating that growth and transport demand for future projections, which it will do efficiently due to its frequency and service pattern on the waterfront.

QUEEN'S QUAY EAST LRT

Phase I of the Waterfront East LRT Project is also known as the Queens Quay East LRT. This Queens Quay East LRT project phase I underwent analysis by Waterfront Toronto, supported by Hatch, in 2016-2017. It is worth noting that a key finding of that analysis was that the given the line's comparability to the Queens Quay West LRT line currently in operation, and the higher density and proportion of jobs (read: reverse ridership) projected for Queens Quay East, the Queens Quay East LRT would achieve a higher financial performance than the Queens Quay West LRT. According to the TTC operating numbers for its surface transit network, the Queens Quay West LRT today is financially the best-performing surface transit route in the TTC network on the basis of operating cost per rider. When considered in the context of the broader transit network, it can be said with confidence that the Queens Quay East LRT (Phase I of

3 Waterfront Transit Network Plan, Attachment 1: Planning and Technical Background
4 Waterfront Transit Network Plan, Attachment 1: Planning and Technical Background
5 Average commuting time to work and proportion of workers, by selected characteristics, 2010
6 Waterfront Transit Network Plan, Attachment 1: Planning and Technical Background

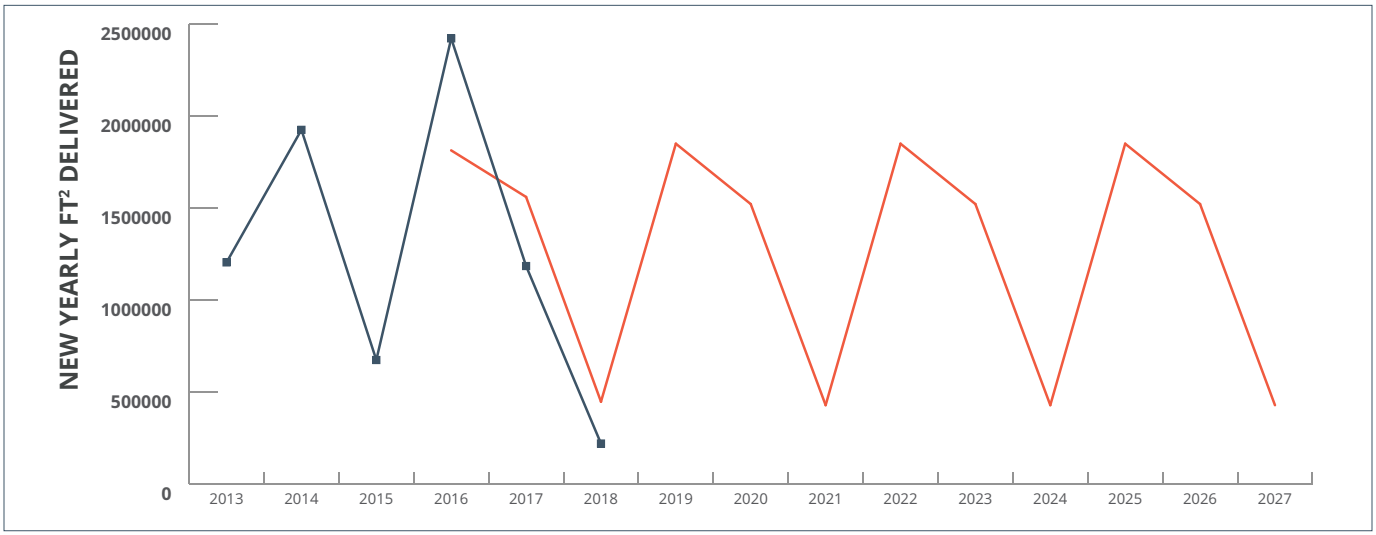

Figure 24: Observed and predicted yearly ft² delivered in Toronto

the Waterfront East LRT) will become the best-performing surface TTC route from a net financial operating perspective once in service.

SPATIAL DEVELOPMENT (LAND USE AND DENSITY)

Office Space: Vacancy Rate

The acceleration of the Waterfront LRT will impact the amount of office space available in the downtown Toronto. According to CoStar Group data, and shown in Table 2, the Toronto Metro currently has 270 million square feet of office space, with 15.8 million square feet of office space available. The Downtown Toronto Centre has 103 million square feet of office space, with 3.6 million square feet of office space available, and a vacancy rate of 3%. In 2018, more than one million square feet of office space was already leased, and Toronto is quickly running out of office space. It is predicted that especially in the next three years, the office space market in downtown Toronto will be especially tight as many of the new office buildings will open by or after 2021. With the current office supply to demand ratio heading towards equilibrium, with a possibility of a 0% vacancy rate by 2019[7], , new development injecting office space into downtown Toronto is necessary for growth and a stable occupancy rate.

New office space construction was estimated by a predictive model based on CoStar Group data. This data was predicted through the plotting of data from 2013 to 2018 (indicated by the black line in Figure 24). The projections indicate a cyclic pattern, shown by the red line in Figure 24, with a constant average delivery rate of new office space (in square feet).

Table 2:Office Space and Vacancy Rates of Toronto Metro, Toronto Downtown Centre, and Financial District

Region	Total Office Space (in millions of square feet)	Office Space Available (in millions of square feet)	Vacancy Rate (%)
Toronto Metro	270	15.8	5.5
Toronto Downtown Centre	103	3.6	3
Financial District	30	1.6	5.4

This shows that an assumed average of the new yearly square footage delivered of office space will result in this cyclical pattern, indicating the normal stable pattern of cyclical development. With no change to this pattern, it is important to note that new development will be curtailed simply by the lack of available sites/supply in downtown Toronto, locating elsewhere. The accelerated build of the Waterfront East LRT will ensure that valuable office space remains in downtown Toronto, and in turn, jobs and growth occur here as well.

Of course, office vacancy and absorption is never perfectly cyclical as the model assumes, however, this methodology

7 Jones Lang LaSalle Canada

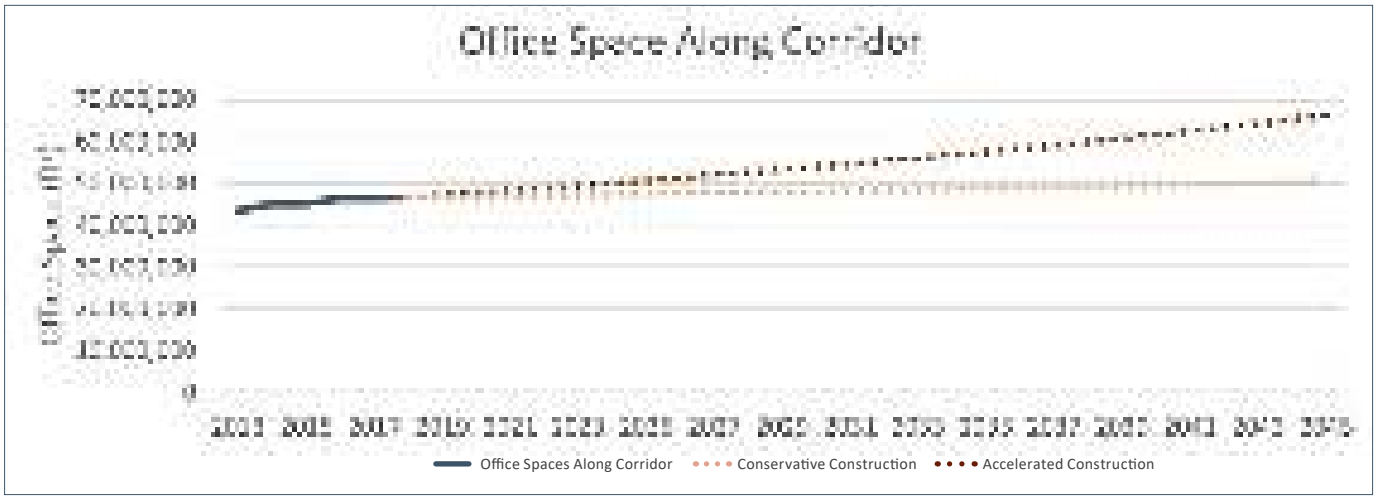

Figure 25: Office Space Along Corridor

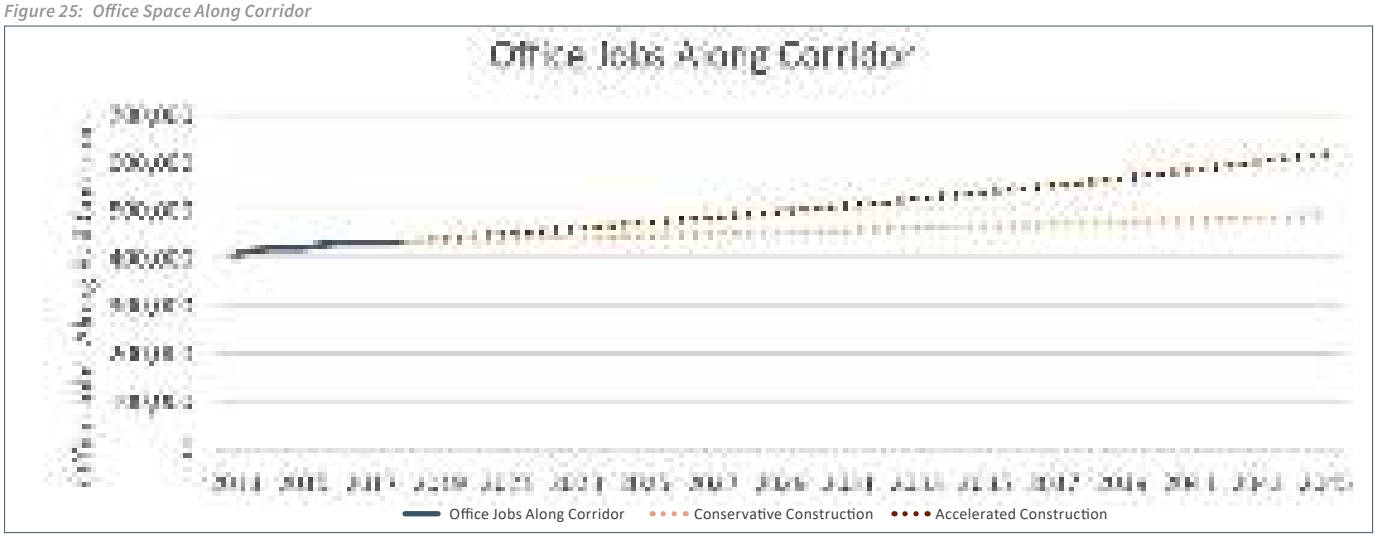

Figure 26: Office Space Along Corridor

is useful for indicating approximate level of benefits.

Office Space: Employment

Through analyzation of CoStar Group data, and evaluating future projections, Figure 25 illustrates that the Waterfront East LRT will help bring in about 19 million square feet of new office space along the corridor in the next approximately 25 years; this increase would not occur at the same rate if the Waterfront East LRT was not implemented, as growth would continue at a reduced rate. This office space further translates to supporting up to about 132,000 new jobs along the corridor, which was found through referencing current employment statistics of downtown Toronto, as illustrated in Table 3, and Figure 26. Figure 27 demonstrates total employment distribution of downtown Toronto. This project helps maintain downtown Toronto's market dominance in the region by first supporting new office space and employment, and ensuring this space and growth remains in downtown Toronto as opposed to elsewhere.

Lastly, this 19 million square feet of additional office space along the corridor may seem like a large number, however, it is important to note that a large part of this corridor is made up of Toronto's financial district which currently holds 30 million square feet of office space alone, and has a vacancy rate of 5.4%. This rate may shift due to the high office space demand of the downtown markets.

Photo Credit: Zorawar Walia

Table 3: Total 2017 Employment in Toronto by Category

Sector	2017
Office	740,180
Institutional	249,150
Service	189,150
Retail	152,350
Manufacturing	132,250
Community and Entertainment	55,490
Total	1,518,560

Figure 27: Downtown Toronto Total Employment (Source: Toronto Employment Survey 2016)t

Photo Credit: Sandra Falcone

Residential Use: New Housing and Residents

Through analyzation of CoStar Group data, and evaluating future projections, Figure 28 illustrates that the construction of the LRT would support up to 25,000 new housing units, accommodating almost 67,000 new residents (Figure 29), in the area in the next approximately 25 years. This brings in more money with regards to resident spending. Without this LRT project, these housing units may be located elsewhere, outside of downtown Toronto and outside of this corridor, taking away resident expenditure.

Retail Use

Lastly, data analyzation predicted that the construction of the Waterfront East LRT would support up to 1.3 million square feet of new retail (shown in Figure 30) which will, in turn, support up to about 3,500 new jobs along the corridor in the next approximately 25 years, as illustrated in Figure 31. Furthermore, this retail space and new jobs will help enable business attraction of nearby amenities and landmarks, including key attractions within the WBIA boundaries. These include the Harbourfront Centre which has about 5 million annual visitors, Billy Bishop with 2.7 million annual visitors, and Jack Layton Ferry Terminal with 1.3 million annual visitors. Outside the WBIA boundaries but within this corridor are attractions including Union Station, Air Canada Centre, Rogers Centre, Ripley's Aquarium, CN Tower, and the Metro Toronto Convention Centre which will be influenced by the accelerated build of the Waterfront East LRT.

The productivity and growth benefits resulting from the jobs, spending, and business attraction of this corridor would not be possible at this capacity without this LRT project and these jobs may be located elsewhere, such as outside of downtown Toronto and outside of this corridor.

Conclusion

Through the evidence presented in this section on spatial development, downtown Toronto is bound for denser, more transit-oriented development which will further draw higher concentrations of innovation, technology businesses, and organizations looking for high quality labor, and well as ensuring more employment and housing. These agglomeration benefits would be enhanced if the Waterfront East LRT were accelerated.

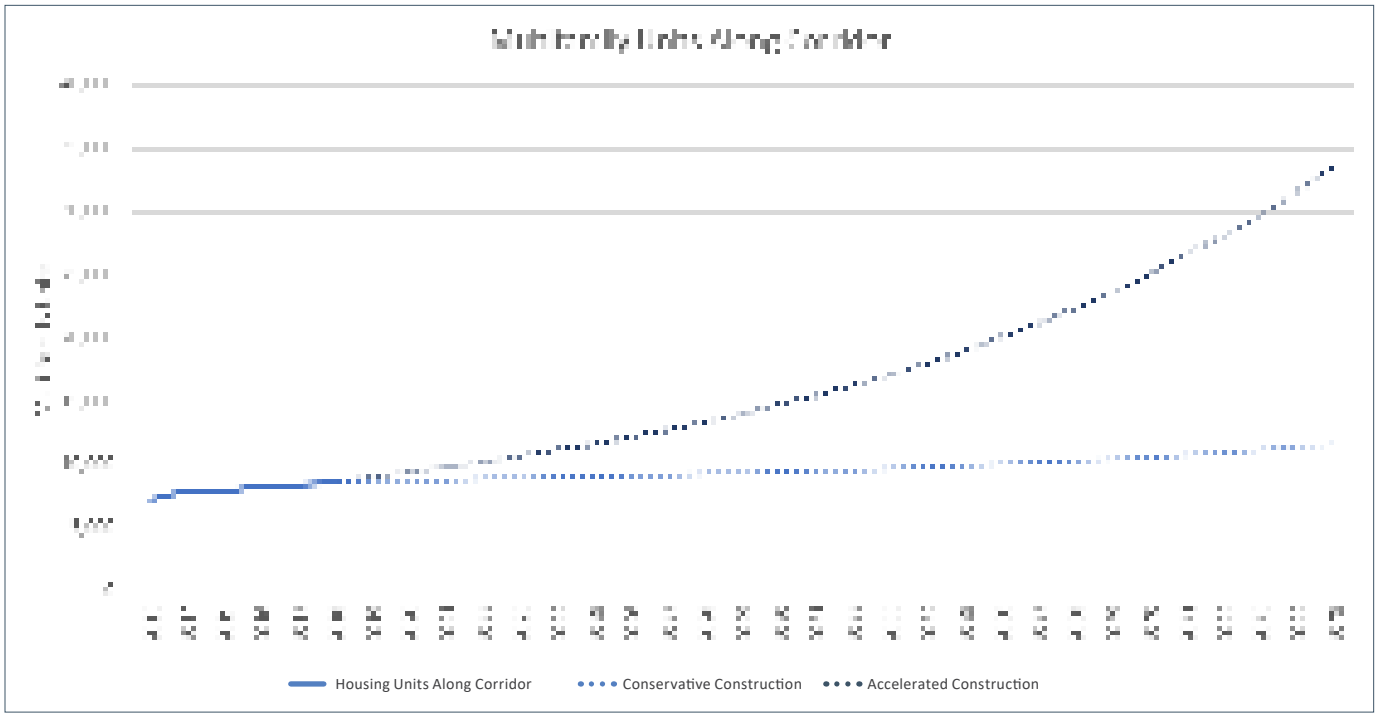

Figure 28: Multifamily Units Along Corridor

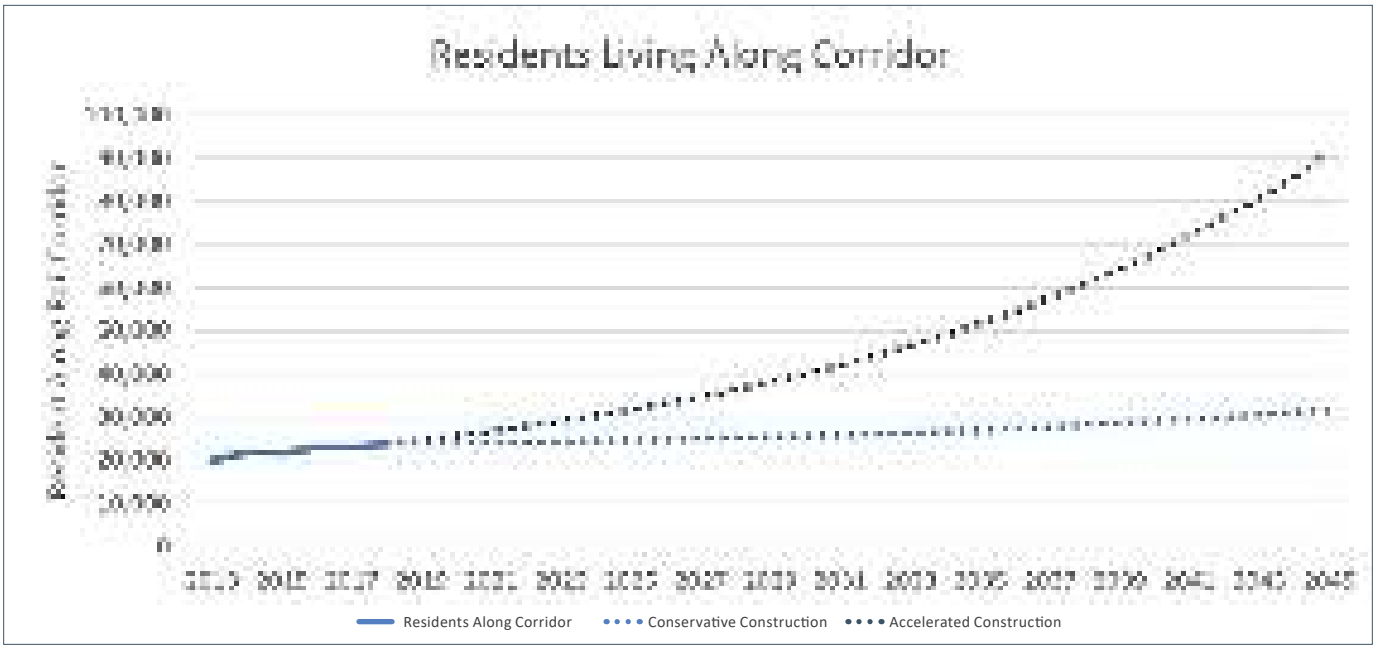

Figure 29: Residents Living Along Corridor

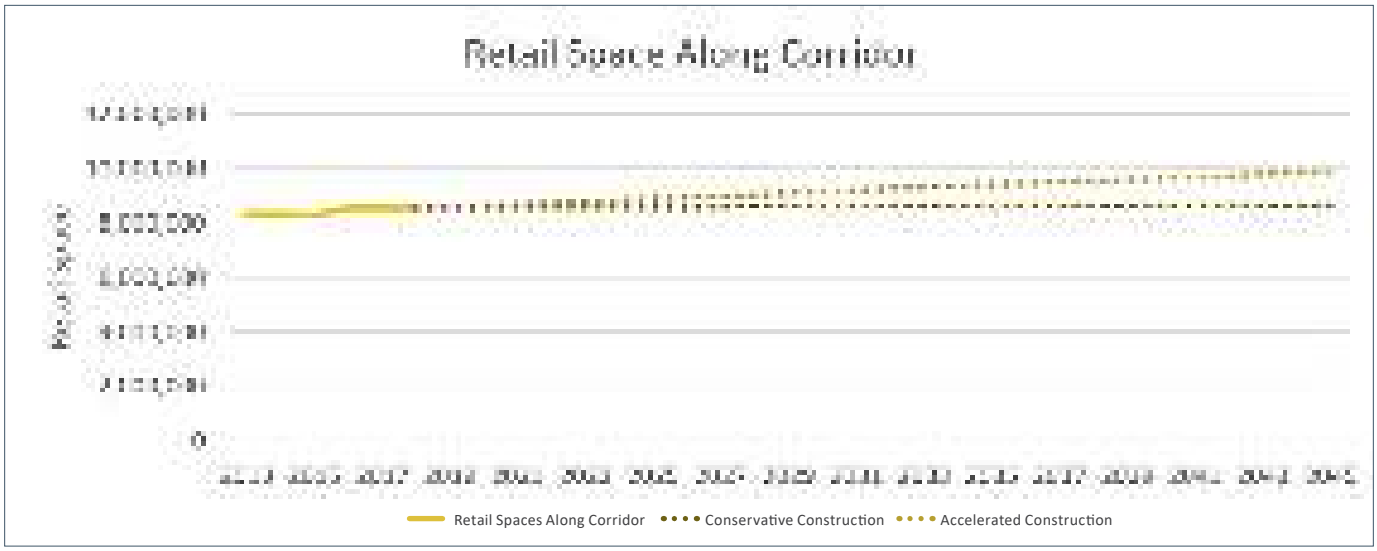

Figure 30: Retail Space Along Corridor

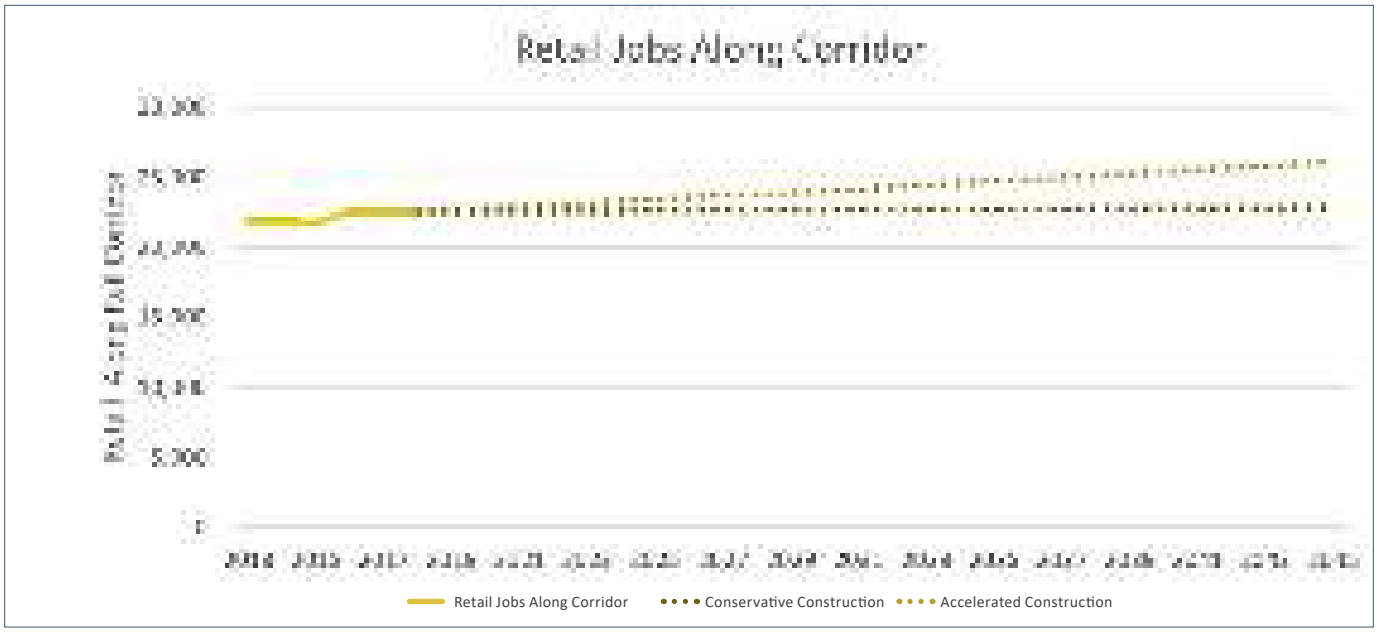

Figure 31: Retail Space Along Corridor

TAX REVENUE UPLIFT

Increased economic activity will result in tax revenue to the federal, provincial, and municipal governments. Between 2025 and 2045, $3.8 billion in tax revenue to the Province of Ontario will be generated due to the construction of the accelerated Waterfront East LRT. In other words, delaying this project to the in-service conservative build in 2045 would cost $3.8 billion in tax revenue to the Province, as illustrated in Figure 32. Furthermore, the costs in delaying the LRT project is $9 billion in federal tax revenue between 2025 and 2045, as shown in Figure 33. Lastly, the costs of delaying the LRT project is $10 billion in municipal property tax revenue (Figure 34) between 2025 and 2045.* This tax revenue uplift for the federal, provincial, and municipal governments is projected to be a direct result of the accelerated build of the Waterfront East LRT.

PROPERTY VALUE UPLIFT - PROPERTY AND LAND VALUE CHANGES

The Downtown Toronto real estate market has remained strong and has a positive outlook. Growth in the real estate market is supported by steady population and employment growth. By 2041, the GTHA will be home to approximately 10 million people and host about 4.8 million jobs . Neighbourhoods across the downtown are intensifying as builders attempt to meet demand for housing that is in close proximity to employment, transit and amenities.

Properties in proximity to the proposed Waterfront East LRT are likely to appreciate in value. Analysis of a range of economic research reports across North American cities indicates that the development of rail infrastructure creates an uplift in property values and in the corresponding property tax, especially where the transit station provides additional development capacity. This research suggests that increases in value are generally confined to properties within 600 meters of the light rail stations or less than a 15-minute walk from a passenger's origin to the station. The percent appreciation also varies by land use, with retail and office uses typically realizing higher property value gains than residential uses.

Table 4 shows growth projections of the construction of an LRT similar to that of the Waterfront East LRT. The percentage is amortized over a conservative 20-year period, since research shows price volatility during construction phases, when noise and increased traffic may cause temporary depreciation.

Table 4: The Waterfront East LRT Property Expected Value Appreciation

Property Type	Low Confidence Interval	Median Value Increase	High Confidence Interval
Retail	11 %	**33 %**	55 %
Residential	8 %	**13 %**	18 %
Office	5 %	**25 %**	45 %

To evaluate the potential gain in property uplift, team economists identified case studies that are relevant to Toronto and its LRT network based on population size, density and ridership. The estimates herein vary

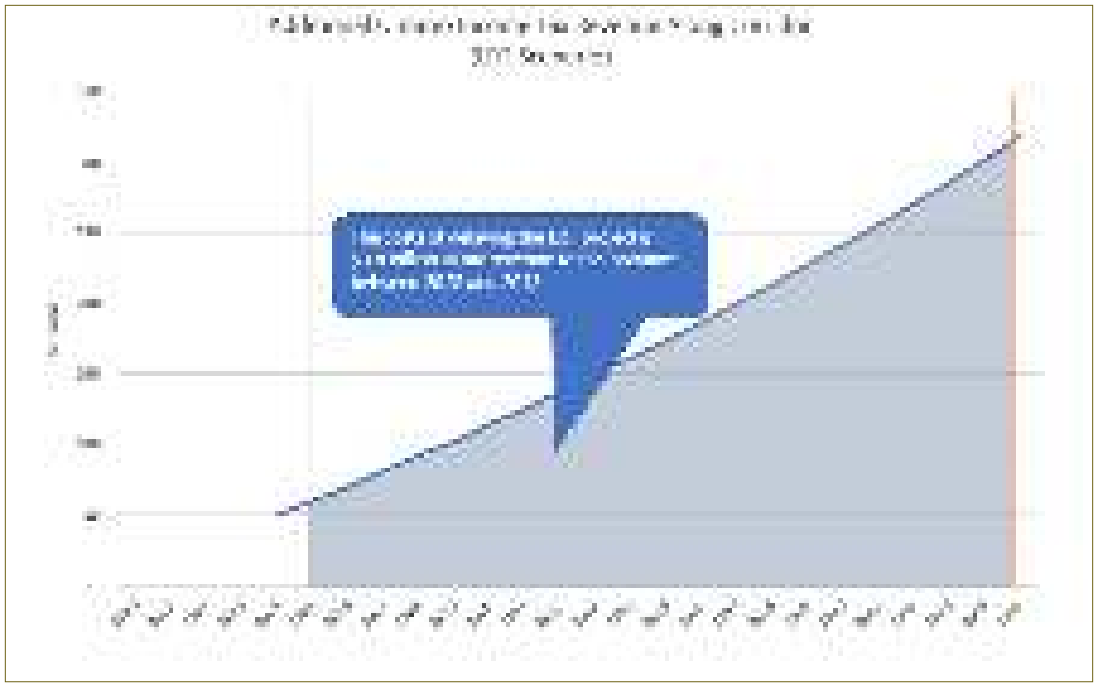

Figure 32: Additional Ontario Income Tax Revenue Along Corridor

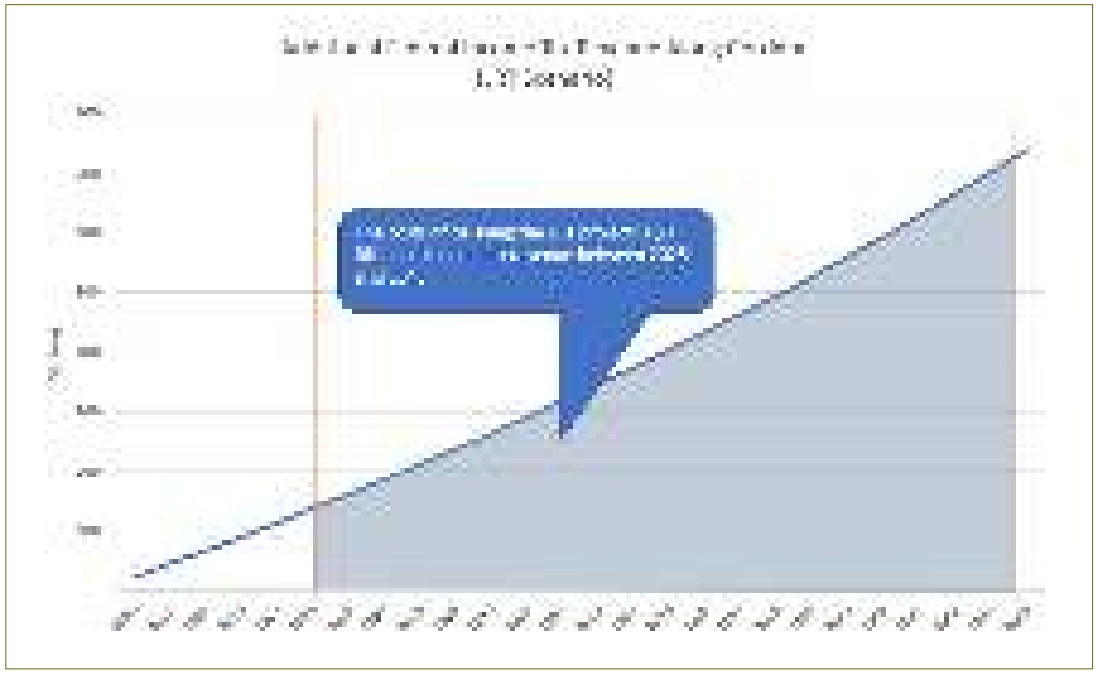

Figure 33: Additional Federal Income Tax Revenue Along Corridor

Figure 34: Additional Municipal Property Tax Revenue Along Corridor

the property value gains based on the development inducement potential of the line. Those station areas with high TOD potential were assigned the highest property uplift rates and, conversely, those with low TOD potential were assigned the lower range of property value appreciation.

According to research done based on comparable LRT studies, a rough estimate of property values along the LRT corridor of this scale could be up to $5 billion by 2045. Economic research indicates that the full property value gains are typically not realized immediately but are generated over time. The result is a gradual market response to improved access to transit.

ENVIRONMENTAL AND HEALTH BENEFITS

Although not currently assessed in this chapter, there are additional economic public benefits gained by the City and Province on top of these core positive economic attributes. According to the International Journal of Behavioural Nutrition and Physical Activity, alternative modes of transportation, combined with compact development, can lead to healthier (i.e. more physically active) communities than lower density, auto-dependent communities.[8] Furthermore, this leads to positive health benefits due to improved air quality and lower automobile emissions. In turn, these health benefits result in lower health care expenditures and increased worker productivity and enable a thriving physical environment for business and talent attraction. These benefits are not enumerated in this chapter but still contribute to residents' overall well-being. This results in further socio-community benefits, creating resilient communities that are successful and highly productive.

8 Efficacy of behavioural interventions for transport behaviour change: systematic review, meta-analysis and intervention coding, 2014

*Benefits of Phase 2 include development at East Harbour, which is more-so reliant on a regional rail hub compared to light rail. Nevertheless, the methodology here presented produces results which are indicative of the scale of benefit resulting from development which must be supported by high-quality transit, like light rail.

HATCH

CONCLUSION

The Waterfront East LRT is a planned project that is recommended to be accelerated due to the numerous economic benefits and impacts it will have to the Waterfront area (including the Waterfront BIA) and to the City of Toronto. This recommended accelerated build is for the year 2025. The benefits of this new line are analyzed through factors including spatial development, land uses (office, residential, and retail), employment, tax revenue uplift, increased property values and business attraction, and productivity gains. Through an analysis of scenarios associated with an accelerated build vs. a delayed build, it is evident that the implementation of the Waterfront East LRT, which is currently in its planning phase, should be accelerated.

Photo Credit: Brad Leitch